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EXAMINER

RIMELL, SAMUEL G

ART UNIT PAPER NUMBER

2175

DATE MAILED: 09/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/729,806

Applicant(s)

STEGELMANN, ROLF GUNTER
ERICH

Examiner

Sam Rimell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15 and 16 is/are allowed.
- 6) ☒ Claim(s) 1-14, 17-34 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.


SAM RIMELL
PRIMARY EXAMINER

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The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 20-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20: In line 7, the phrase “the first row modification operation” lacks antecedent basis. Previous portions of the claim refer to “data modification operations”, not “row modification operations”.

Claims 21-27: These claims depend from claim 20.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-14, 17-30 and 32-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Lomet (U.S. Patent 5,933,838).

Claim 1: Lomet discloses a database system (line 1 of abstract) which includes storage devices (56, 58 in FIG. 3). The cache manager in (66 in FIG. 3) is further detailed in FIG. 11, and includes a portion of an object table (122) having a plurality of rows (124, 126). Each row includes a data structure (128, 130). Both data structures (128, 130) are in the portion of the object table (122). The first row (130) contains data presenting a “before image” and the second row (128) contains data representing an “after image”. This occurs because the first row has a lower state identifier value (SID) than the second row. The lower number state identifier

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represents that a transaction on the object, such as a logging operation, occurred sequentially before a transaction on an object having the higher number (see col. 33, lines 56-60).

Claim 2: Each row (130, 128 in FIG. 11) includes state identifiers ("SID" in FIG. 11).

Claim 3: The state identifiers (SID) are in the table (122) of FIG. 11.

Claim 4: The first row (130) and the second row (128) have a row identifier (object ID).

The first and second rows are associated, once being a successor object, the other being a predecessor object.

Claim 5: The rows contain state identifiers (SID) to indicate "before" and "after" states as explained in claim 1.

Claim 6: Data modification operations can be performed, such as read and write operations (FIG. 11). The operations are requests, such as a request to read data or a request to write data. As stated with respect to claim 1, the first row contains data representing a "before" image. Additional rows, such as a third row, may be provided having the same "before" image, as indicated by the lower SID value of "1".

Claim 7: Col. 33, lines 56-60 indicate that the state of each row corresponds to a log number recorded in a log, which is separate from the table (120). The recording of this data in a log is considered to be a transitioning of the data, based on a command to manipulate the data by recording it in the log.

Claims 8-9: Any loading of data into the rows (128, 130) is considered to be a return of data to those rows. The processing system which loads the data into these rows is therefore the module which returns the data. Data can be returned to the rows during a normal read request,

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which would cause the SID to be altered. If an abort occurs, data can be returned to the rows from the log record (col. 33, lines 27-29).

Claim 10: The processor includes programming to mark the first row with a state identification. This programming reads as a module which marks the first row as a current image.

Claim 11: The processor includes programming which can flush the data from the rows of the table. (col. 33, line 28). The flushing can occur in response to an abort condition, such as after the abort condition has occurred and recovery has been completed.

Claim 12: The table (122 in FIG. 11) includes row identifiers (object ID) associated with the first and second rows, a first state identifier (SID) associated with the first row and a second state identifier (SID) associated with the second row.

Claim 13: The table (120) further includes a mutation identifier (dirty flag). The intended usage of the flag (i.e. what the flag indicates) does not limit the structure of the system and thus carries no patentable weight. Each of the mutation identifiers are associated with the row identifiers (object ID).

Claim 14: The mutation identifier (dirty flag) is a bit which is changed by processing operations. The bit changes between “1” and “0”.

Claim 17: Although it is not understood what is meant by the phrase “return a row to return”, as best as can be understood, this claim is suggesting some return of data to the rows. As stated with respect to claims 8 and 9 above, any loading of data to the rows (128, 130) is considered to be a return of data to those rows.

Claim 18: The presence of even one mutation identifier (dirty flag) is considered to be a “list” of such identifiers. This interpretation is confirmed by the claim, which defines the “list” as having as few as one item. The intended usage of the flag to indicate active operations does not limit the structure of the system and thus carries no patentable weight.

Claim 19: The presence of even one mutation identifier (dirty flag) is considered to be a “list” of such identifiers. The intended usage of the flag to indicate an abort operation does not limit the structure of the system and thus carries no patentable weight.

Claim 20: FIG. 11 illustrates the storage of objects (128 and 130) in the rows (124) and (126) respectively. In response to processing operations, such as logging operations, a state identifier (SID) is assigned to each object (128, 130). The state identifiers are indicators of a sequence in the log (col. 33, lines 56-60). Thus, a lower SID number represents that a transaction on the object occurred before the transaction on the object having the higher SID. Accordingly, the object with the lower SID is the “before” image and the object with the higher SID is the “after” image. The objects are stored in an object table.

Claim 21: The state identifiers (SID) are associated with each row (122) and (126) and indicate whether the row contains the “before” image data or the “after” image data.

Claim 22: Any loading of data to the rows is readable as a return of data to that row under a condition.

Claim 23: See remarks for claims 8-9.

Claim 24: See remarks for claim 10.

Claim 25: Claim 25 presents two optional operations, only one of which limits the claims. See remarks for claim 11 in reference to the deleting operation.

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Claim 26: The identification of a state identifier to the second row (128) is considered to be a marking of that row.

Claim 27: Claim 27 presents two optional operations, only one of which limits the claims. See remarks for claim 11 in reference to deleting rows.

Claims 28: See remarks for claim 1.

Claim 29: The data structure is the object table. One portion of the object table (122) is shown in FIG. 11. The portion of the object table (122) has individual rows such as (124) and (126) that contain data objects with state identifiers. See remarks for claim 1 pertaining to how the state identifiers correlate to “before” and “after” images.

Claim 30: A relational table is a standard term in the art referring to a structure of data having rows and columns. Since the data structure has at least one row (such as row 126) in at least one column, it meets the definition of being a relational table.

Claim 32: Each of the data in the object table (FIG. 11) is stored in rows.

Claim 33: See remarks for claim 32.

Claim 34: Claim 34 only recites a series of method steps derived from the usage of the claimed article. Since the method steps are not actual structures, they do not limit the physical structure of the article and thus carry no patentable weight.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lomet (U.S. Patent 5,933,838).

Claim 31: FIG.11 of Lomet illustrates one set of storage elements (122) storing a table and one processor (54) which processes the data associated with the table. Lomet differs from claim 33 in that it does not disclose a duplicate system, having a duplicate processor (54) and duplicate storage elements (122). Such a duplicate system would run in parallel with the system of FIG. 3. It would have been obvious to one of ordinary skill in the art to provide a duplicate processor (154) and duplicate storage elements for storing the table (122) as an obvious duplication of parts (MPEP 2144.04, Section B).

Claims 15 and 16 are allowed.

Remarks

Applicant's arguments and amendments have been considered.

With respect to claim 1, Applicant has amended the claim to define the "before" image in a portion of the table and an "after image" in the same table portion. Since structure (122) in FIG. 11 represents a portion of table, both the "before" and "after" images are in the same table portion.

The amendments to claim 20 have raised a new grounds of rejection under 35 USC 112, second paragraph. Nonetheless, the amendments in claim 20 define a table having first and second rows, which is exactly what is shown in the table portion (122) of FIG. 11.

Claims 28 and 29 have been amended in a manner analogous to that of claim 1. Examiner maintains that the structure (122) is readable as a portion of an object table, and that both the "before" and "after" objects are within that table portion.

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Claims 15-16 are indicated as allowable.

Any inquiry concerning this communication should be directed to Sam Rimell at telephone number (703) 306-5626.

A handwritten signature in black ink, appearing to read 'S. Rimell', is positioned above the printed name.

Sam Rimell
Primary Examiner
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